REMARKS

Applicant thanks the Examiner for the thorough consideration given the present application. Claims 1-12 are currently being prosecuted. The Examiner is respectfully requested to reconsider her rejections in view of the remarks as set forth below.

Rejection Under 35 USC 103

Claims 1-12 stand rejected under 35 USC 103 as being obvious over Ishii et al. (U.S. Published Application 2003/0011552) in view of Nguyen (U.S. Published Application 2004/0233146) and Yazawa et al. (U.S. Published Application 2003/0043090). This rejection is respectfully traversed.

The Examiner states that Ishii et al. teaches a driving device for an LCD display which can control the gray scale of every scan period, including a switching unit 139 having an output connected to the LCD. Ishii et al. also teaches a pulse width modulation for a gray scale control unit connected to an external memory and the switching unit for controlling the gray scale display. The Examiner further states that Ishii et al. teaches the control of the display duration over three durations.

The Examiner admits that Ishii et al. does not specify that the display uses organic light emitting diodes. The Examiner relies on Nguyen to teach that the organic light emitting diodes can replace the LCDs.

The Examiner further admits that the combination of Ishii et al. and Nguyen does not teach a current buffer and current and voltages sources. The Examiner relies on Yazawa et al. to teach a current buffer Q9 connected to an external current source 11 and an external precharge voltage source 12. The Examiner feels that it would have been obvious to include the buffer current and voltage source of the Yazawa in the circuitry of Ishii et al. using an organic light emitting diode as taught by Nguyen.

First, Applicant submits that the combination of the three references will not teach the present invention. In regard to Ishii et al., the Examiner has referred to the three different durations of the display. The Examiner is referred to Fig. 6 of Ishii et al. where two different levels are shown which indicate the two parts of the display phase such as shown in Fig. 3 of the present application. However, the reference only shows a reset time TR and does not show a specific pre-charge phase or a discharge phase other than the reset. Thus, Applicant submits that the Examiner is incorrect in stating that Ishii et al. shows these three durations.

Furthermore, the Examiner stated that Yazawa shows a current buffer connected to an external current source and an external precharge voltage source 12. However, Applicant wishes to point out that the independent claims describe the switching unit as being connected to the external pre-charge voltage source and the current buffer. The current buffer in Yazawa et al. is connected between the switch and both current source 11 and voltage source 12. Thus, the combination of the references does not show a switch having a direct connection to the precharge voltage source but rather has a buffer which is connected to both the current supply and the precharge voltage source. Accordingly, Applicant submits that the combination of the three references does not meet the terms of the independent claims.

Furthermore, Applicant submits that it would not be obvious to one of ordinary skill in the art to make the combination of the three devices as suggested by the Examiner. In particular, Applicant submits that it would not be obvious to add the features of Yazawa et al. to the arrangement of Ishii et al. There is no motivation for one skilled in the art to use the particular circuitry shown in Yazawa et al. in the device of Ishii et al. Since Ishii et al. does not show the precharge source, there would be no reason for one skilled in the art to add such a feature to the overall display. Furthermore, there is no reason why one skilled in the art would insert the current buffer along with a current source in the Ishii et al. device. Accordingly, Applicant submits that it would not be obvious to combine these three references.

In particular, in claims 1 and 9 the claims specifically provide for the switching unit connected to the precharge voltage source and the current buffer and the ground. These claims

also specifically discuss the various durations and the specific connections which are made during each duration. These features are not shown in the combination of the references and accordingly claims 1 and 9 are patentable thereover.

Claim 5 is a method claim which corresponds to apparatus claims 1 and 9. This claim specifically describes the three phases and the step of discharging the connections during each duration and the discharging steps. Applicants submit that these claims are likewise allowable.

Claims 2-4, 6-8 and 10-12 depend from these allowable independent claims and as such are also considered to be allowable. In addition, the dependent claims specifically point out the number of bits of the gray scale the proportion conversion of the second duration based on the number of bits and the use of a panel type of display. Accordingly, Applicant submits that these claims are additionally allowable.

Conclusion

In view of the above remarks, it is believed that the claims clearly distinguish over the patents relied on by the Examiner, either alone or in combination. In view of this, reconsideration of the rejection and allowance of all of the claims are respectfully requested.

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Respectfully submitted,

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